THE

ONTARIO WATER RESOURCES

COMMISSION

# WATER POLLUTION SURVEY

of the

# VILLAGE OF FENELON FALLS

# COUNTY OF VICTORIA

1966

MOE
FEN
WAT
ASSI

c.1
a aa

LIBRARY COPY
JUN 8 1966
ONTARIO WATER RESOURCES COMMISSION

Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact ServiceOntario Publications at copyright@ontario.ca

# THE

# ONTARIO WATER RESOURCES

# COMMISSION

Report on a

# WATER POLLUTION SURVEY

of the

# VILLAGE OF FENELON FALLS

in the

# COUNTY OF VICTORIA

Division of Sanitary Engineering

1 9 6 6

Report on a

# WATER POLLUTION SURVEY

of the

# VILLAGE OF FENELON FALLS

INDEX — PAGE NO.


| | |
|---|---|
| Introduction | 1 |
| Interview with Officials | 1 |
| Village of Fenelon Falls | 1 |
| Water Uses | 2 |
| Sewerage System | 2 |
| Sanitary Waste Disposal | 3 |
| Sampling Procedure | 3 |
| Sample Results | 3 |
| Summary | 5 |
| Recommendation | 6 |


## APPENDICES


Interpretation of Analyses

Laboratory Results - Table I and II

Map of the Village of Fenelon Falls

# WATER POLLUTION SURVEY

of the

# VILLAGE OF FENELON FALLS

## INTRODUCTION

A water pollution survey of the Village of Fenelon Falls was performed on July 22, 1965. Surveys of this type are made by the Ontario Water Resources Commission in order to locate potential and existing sources of surface water pollution. Recommendations are made concerning the abatement of conditions which adversely affect water quality. Appended to this report is a map of Fenelon Falls showing the locations of sampling points within the village. This survey was undertaken primarily at the request of local officials to determine the need for municipal sewage works.

## INTERVIEW WITH OFFICIALS

Discussions were held with the following officials during this survey.

Dr. G.C. Johnstone, Medical Officer of Health
Mr. W.A. Mitchell, Municipal Clerk
Mr. T. Graham, Chairman of the Local Water Board
Mr. Peter Vanderyagt, Councillor.

## VILLAGE OF FENELON FALLS

The Village of Fenelon Falls is located on the Trent Waterway on a narrows between Cameron Lake and Sturgeon Lake which is known as the Otonabee River. The river flows in a south easterly direction to drain Cameron Lake into Sturgeon

Lake, losing 24 feet in elevation in the process.

According to the 1965 Municipal Directory, the population is approximately 1,307. The area of the village is approximately 656 acres.

## WATER USES

### Municipal

The OWRC water treatment plant is located at the foot of Frances Street at the west limits of the village. The water supply is taken from Cameron Lake via a 710-foot intake and is afforded coarse screening, pressure filtration and chlorination. Clean water storage amounts to 5720 gallons. The average daily consumption by the village amounted to 110,000 gallons in 1965.

### Industrial

Industrial demands for water in the village are supplied by the water treatment plant.

## SEWERAGE SYSTEM

### Surface Drainage

Two storm sewers convey surface run-off to the river from the west side of the village. A storm sewer and a local creek carries run-off to the canal and the river respectively.

The area east of the river suffers poor drainage during heavy precipitation due to the flatness of the terrain and the limited nature of the sewer capacity. The area served by the sewer that discharges to the river above the dam suffers

additionally apparently on account of the minimal difference in elevation between the land and the maintained river level.

SANITARY WASTE DISPOSAL

The provision of adequate private sewage disposal systems in Fenelon Falls has been difficult in view of geological conditions together with limited sized lots in the business block area. Considerable difficulty has been experienced in providing satisfactory systems to serve the high school and also the laundromats in the village. Considerable difficulty has been experienced by the operator of the local dairy in providing satisfactory sub-surface disposal of plant wastes. The municipal storm sewer has received plant wastes over an extended period of time.

SAMPLING PROCEDURE

Samples were collected from pertinent locations on the Otonabee River and Trent Canal, the local creek and municipal sewer outfalls.

SAMPLE RESULTS

The pertinent laboratory analyses results together with an interpretation of the various analyses employed and a map showing the location of sampling points are appended to this report.

The analyses employed in this survey to assess the quality of surface waters and outfall discharges were biochemical

oxygen demand (BOD), suspended solids, and total coliform count.

The OWRC objectives for surface water quality are that the following concentrations are not exceeded:

| | | |
|---|---|---|
| BOD | - | 4.0 ppm |
| Coliform Count | - | 2400 coliforms per 100 ml. |

Adequate protection of surface waters, except in certain specific instances influenced by local conditions, is generally obtained if the following waste discharge concentrations are not exceeded:

| | | |
|---|---|---|
| BOD | - | 15 ppm |
| Suspended Solids | - | 15 ppm |

The sample results are tabulated in the appendices as follows:

Table I - Otonabee River, Trent Canal - and local creek

Table II - Municipal storm sewer outfalls

Generally satisfactory water quality is indicated in the sample results pertinent to the river and canal. The sample results pertinent to the local creek reflect the reported waste disposal problems at the two laundromats as well as the discharge of inadequately treated sanitary wastes from premises in the business block to the under-ground section of the creek.

The sample results pertinent to the Lindsay Street storm sewer are a reflection of sanitary waste disposal problems in the south-end of the village. The sample results pertinent to the storm sewer in the vicinity of the Handley Planing Mill are undoubtedly a reflection of waste disposal problems at the

local high school. The sample results pertinent to the May Street storm sewer corroborate the visible presence of dairy wastes in the discharge thereof.

A review of the above survey findings substantiates the need for adequate sewage treatment facilities for the Village of Fenelon Falls.

SUMMARY

A water pollution survey of the Village of Fenelon Falls was performed by Commission staff on July 22, 1965, at the request of municipal officials. Samples were collected from the Otonabee River, the Trent Canal, a local creek and municipal sewer outfalls. The investigation revealed that inadequately treated sanitary and industrial wastes have access to the local creek, the Otonabee River and the Trent Canal which reflects the necessity of providing municipal sewage treatment to protect surface water quality.

Three methods are now available to municipalities for implementing sewage works programmes. These are, by requesting the provision of service from a Provincially-owned project, by entering into an agreement with the OWRC for the construction of projects with the obligation to pay the debt retirement and operating charges over the term of the agreement with the facility reverting to the municipality at the termination of the agreement, or by proceeding on a municipal basis and

meeting capital costs by the sale of debentures.

If either of the first two methods are considered then a request should be forwarded to:

Mr. P.G. Cockburn, Director,
Division of Project Development,
Ontario Water Resources Commission,
801 Bay Street,
Toronto 5, Ontario.

RECOMMENDATION

The Village of Fenelon Falls should construct a municipal sewerage system.

Approved by: L. South

L. G. South,
Acting District Engineer,
Division of Sanitary Engineering.

Prepared by: A. D. McConnell

/mh

## INTERPRETATION OF ANALYSES

The analyses employed in this investigation to assess the quality of the surface water and outfall discharges are as follows:

### Biochemical Oxygen Demand (BOD)

The BOD of sewage or polluted waters is the oxygen required for stabilization (natural purification in a stream) of the decomposable organic matter or chemical material by aerobic biochemical action. Unless otherwise noted, a five-day BOD determination with incubation at 20° C is reported. A high BOD is indicative of organic or chemical pollution.

### Solids

The analyses for solids include tests for total, suspended, and dissolved solids. The first test measures both the solids in solution and in suspension. The results are reported in parts per million.

The suspended solids indicate the measure of undissolved solids of organic or inorganic nature in suspension. Land erosion, sewage, and industrial wastes are significant sources of suspended solids. The effect of suspended solids in water is reflected in difficulties associated with water purification and deposition in streams which could interfere with navigation and injure the habitat of fish. Where suspended solids values, ascertained by a quantitative analysis, approach 20 parts per million or less, laboratory difficulties usually result in these values being determined as turbidity, a qualitative analysis.

The dissolved solids are a measure of those solids in solution.

### Membrane Filter Coliform Count

The membrane filter technique is employed to obtain a direct enumeration of coliform organisms and is reported per 100 millilitres of the sample. The presence of coliforms indicates pollution from human or animal excrement, or from some non-faecal sources.

TABLE I

Otonabee River, Trent Canal and local Creek

| Sample Point No. | Description | 5-Day BOD | SOLIDS | | | BACTERIOLOGICAL EXAMINATION (M.F.) |
|---|---|---|---|---|---|---|
| | | | Total | Susp. | Diss. | Coliforms/100 ml. |
| TS 153.80 | Otonabee River at village limit - Ellice Street | 0.8 | 64 | 10 | 54 | 350 |
| TO 154.99 | Otonabee River 400' below end of canal - east side | 0.9 | 84 | 1 | 83 | 240 |
| TO 155.10 | Otonabee River 150' below Lindsay Street storm sewer outfall | 0.8 | 52 | 2 | 50 | 166 |
| TCX 155.11 | Local creek at mouth of Otonabee River | 19.0 | 526 | 109 | 417 | 16,000,000 |
| TCX 155.70 | Local creek at John Street | 2.2 | 428 | 81 | 347 | 70,000 |
| TO 155.13 | Otonabee River at dam | 1.0 | 84 | 1 | 83 | 22 |
| TO 155.20 | Otonabee River at CN bridge - west side | 1.1 | 70 | 2 | 68 | 12 |
| TC 155.20 | Trent Canal at CN bridge - east side | 1.0 | 88 | 1 | 87 | 24 |
| TC 155.30 | Municipal water works intake at Frances Street | -- | -- | -- | -- | -- |

Date Sampled: July 22, 1965

NOTE: All analyses reported in ppm except where otherwise indicated.

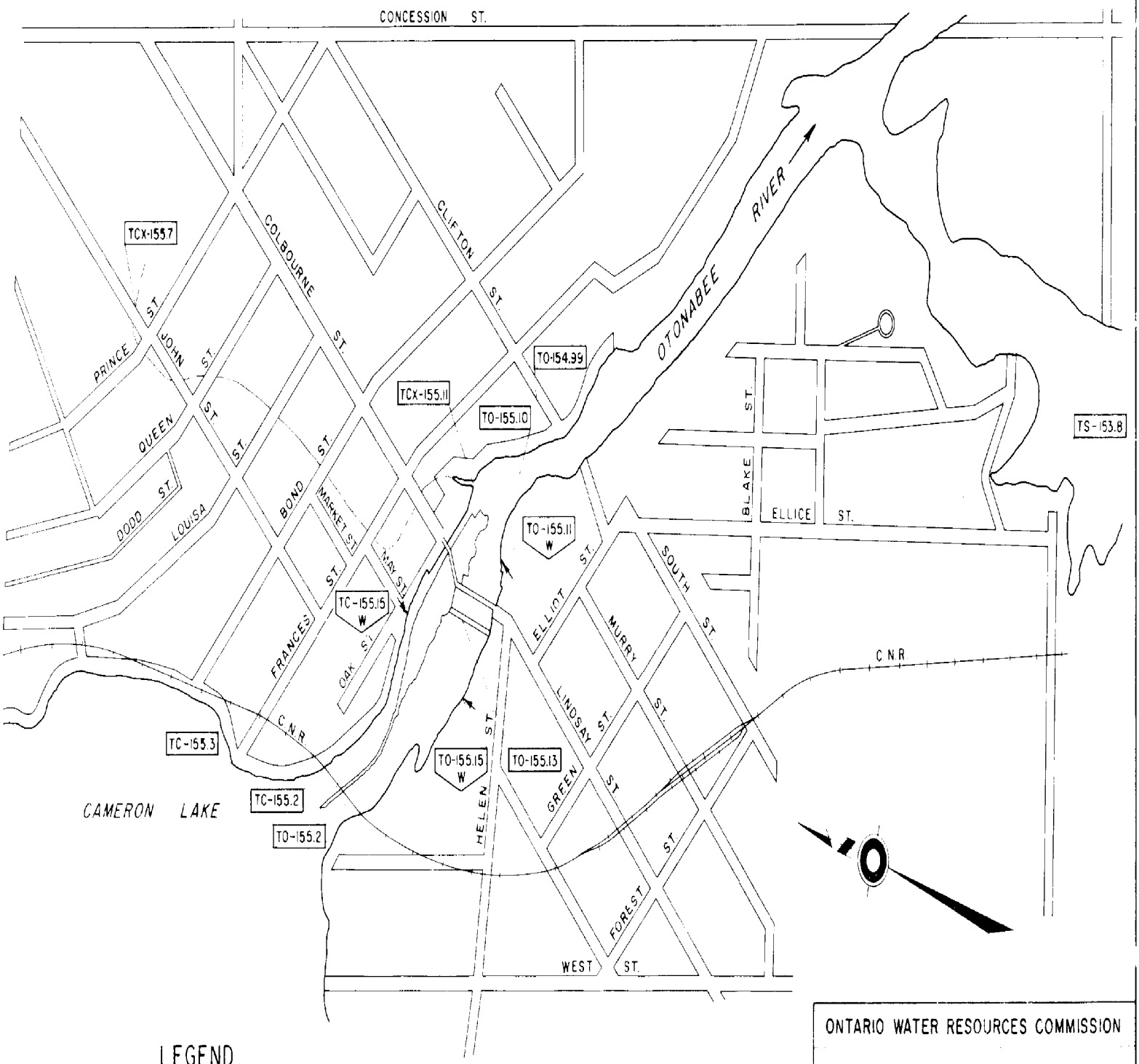
# TABLE II

## Municipal Storm Drainage

| Sample Point No. | Description | 5-Day BOD | SOLIDS | | | BACTERIOLOGICAL EXAMINATION (M.F.) |
|---|---|---|---|---|---|---|
| | | | Total | Susp. | Diss. | Coliforms/100 ml. |
| TO 155.11 W | Storm sewer outfall from Lindsay Street | 14.0 | 590 | 136 | 454 | 93,000 |
| TO 155.15 W | Storm sewer outfall at rear of Handley Planing Mill | 4.8 | 642 | 25 | 617 | 7,000 |
| TC 155.15 W | Storm sewer outfall to Canal opposite May Street | 7.4 | 208 | 77 | 131 | 7,500,000 |

Date Sampled: July 22, 1965

NOTE: All analyses reported in ppm except where otherwise indicated.




## LEGEND

TC-155.3 – STREAM AND LAKE SAMPLING POINT

TO-155.11 W – OUTFALL SAMPLING POINT
– TYPE OF OUTFALL

OUTFALL SYMBOL LETTERS

W – STORM SEWER

ONTARIO WATER RESOURCES COMMISSION

# VILLAGE OF FENELON FALLS

WATER POLLUTION SURVEY

1965

SCALE: 200 0 200 600 FEET

DRAWN BY: A.R.S. DATE: SEPT, 1965

CHECKED BY: DRAWING N°: 65-116